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EXAMINER	
GAGLIARDI, ALBERT J	
ART UNIT	PAPER NUMBER
2878	

DATE MAILED: 06/19/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/075,728	TOOMEY, PATRICK J.	
	Examiner	Art Unit	
	Albert J. Gagliardi	2878	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *20 March 2003* .

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *8,10-13,17-21,23-25,27-32,34-37 and 39-53* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *8,10-13,17-21,23-25,27-32,34-37 and 39-53* is/are rejected.

7)☒ Claim(s) *8,10,11 and 45-48* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *12 February 2002* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) *8* .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Comment on Submissions

1. The amendment filed 20 March 2003 has been entered as Amendment B.

Priority

2. The examiner has considered information considered by the Office in parent application 09/338,906 when examining this continuing application, and the application file reflects that fact. A list of the information need not be submitted in the continuing application unless the applicant desires the information to be printed on the patent. See MPEP § 609.

Specification

3. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Claim Objections

4. Claims 8 and 10-11 are objected to because of the following informalities:

Regarding claim 8, the expression "radiation emitted by or transmitted though" is inaccurate. The more appropriate expression should be -- radiation reflected by or transmitted though--. The examiner notes that while the term "emitted" is generally considered to imply some type of luminescent/fluorescent type emission which, if actually intended, would result in the claims being withdrawn from consideration on the basis of election by original presentation, other language in the claim (i.e. "significantly absorbed" and "transmitted") suggest that the term is used in a much more broader sense so as to mean "reflected" and the claims will be interpreted as such.

Regarding claim 10-11, the examiner notes that an "endoscopic probe" is a visual testing device and not a contact testing device.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 10-13, 18-21, 23, 25, 27-28, 30-32, 34-37, 39-44, and 49-50 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dadachanji (GB 2 303 444).

Regarding claim 10, *Dadachanji* suggest a method comprising the steps of: exposing with a generator a predetermined area of a structure with first electromagnetic radiation including at least one predetermined wavelength that is significantly absorbed by water (page 3, par. 2); sensing with a sensor unit second electromagnetic radiation from the structure, the second electromagnetic radiation based on the first electromagnetic radiation (page 3, par. 2); and determining whether a water suspect area exists in the structure based on the sensed second radiation (page 3, par. 2); and determining whether water exists in the structure based on the sensed radiation (page 3, par. 2).

Dadachanji does not specifically disclose the additional steps of additionally contactingly testing the water suspect area and determining whether the water is present based on the further testing. Regarding the steps of performing further testing on the water suspect area and determining whether the water is present based on the further testing, it is well appreciated by

those of ordinary skill in the art that all measuring and testing devices, including infrared measuring devices, are prone to some degree of error. Depending on the importance of the measurement, it is common in the art (and good engineering practice) to repeat and/or confirm the results of any measurement so as to increase the reliability of the test. Regarding the use of a moisture detector such as a resistivity meter, *Dadachanji* discloses, as is well known in the art, that it is common in the art to use such instruments for determining the presence of moisture in buildings (p1, par.2) As such, it would have been obvious to a person of ordinary skill in the art to utilize a moisture detector such as a resistivity meter to confirm the presence of water in the structure in view of the well known use thereof for such purposes.

Regarding claim 11, although *Dadachanji* does not specifically disclose the additional step of determining the source of the water, those skilled in the art appreciate that the presence of moisture in a building is generally undesirable and therefore, once such moisture is discovered, it would be obvious to one skilled in the art to take remedial action including steps of determining the source of the water so that it can be eliminated.

Regarding claim 12, *Dadachanji* suggests (see explanation regarding claim 10 above) a method comprising the steps of: exposing with a generator a predetermined area of a structure with first electromagnetic radiation including at least one predetermined wavelength that is significantly absorbed by water and at least one predetermined reference wavelength that is not absorbed by water (page 3, par. 2); sensing with a sensor unit electromagnetic radiation at the detection wavelength and the reference wavelength (page 3, par. 2); determining whether a water suspect area exists based on the sensed detection and reference wavelengths (page 3, par. 2); non-contactingly testing the water suspect area with a moisture meter (see explanation regarding

claim 10 above) such as a capacitance meter (p. 1, par.2); and determining whether water is present based on the testing (see explanation regarding claim 10 above) and determining the source of the water (see explanation regarding claim 10 above). Regarding the use of litmus paper, a pH meter or salinity, such methods of determining the source of water in buildings are well known and considered as an obvious design choice within the skill of a person of ordinary skill in the art depending on the need of the particular application.

Regarding claim 13, *Dadachanji* discloses that the detection wavelength is the same as the exposure wavelength (page 3, par. 2).

Regarding claim 18, *Dadachanji* suggests (see explanation regarding claim 10 above) a method comprising the steps of: generating and exposing with a generator a predetermined area of a structure with electromagnetic radiation including at least one predetermined wavelength that is significantly absorbed by water and not significantly absorbed by material composing the structure, and at least one predetermined reference wavelength that is not significantly absorbed by the water nor the material composing the structure (inherent or obvious aspects of a "measuring" and "reference" wavelengths) as disclosed at page 3, par. 2); sensing with a sensor unit electromagnetic radiation from the exposed area of the structure to determine an intensity level of the exposure wavelength and the reference wavelength (page 3, par. 2); comparing the intensity levels (page 3, par. 2); determining that the predetermined area includes water if the intensity levels differ by a predetermined amount (page 3, par. 2); and determining that the area includes no water if the intensity levels do not differ by a predetermined amount (inherent or obvious).

Regarding claim 19, *Dadachanji* suggests the use of an electromagnetic generator and a sensor unit (page 3, par. 2). The steps of positioning the generator and positioning the sensor are inherent or otherwise obvious aspects of suggested method that must necessarily be performed before the steps of generating and sensing.

Regarding claim 20, *Dadachanji* discloses that the generator and sensor are positioned such that the sensor receives generated light by reflection (page 3, par. 2).

Regarding claim 21, although *Dadachanji* discloses that the generator and sensor are positioned such that the sensor receives generated light by reflection, it is well known in the art to perform infrared analysis by other functionally equivalent means including by transmission. Therefore, depending on the needs of the particular application, it would have been an obvious design choice within the skill of a person of ordinary skill in the art to modify the device disclosed by *Dadachanji* such the generator and the sensor unit are arranged such the sensor unit receives the generated radiation by transmission through the structure in view of the well known functionally equivalent means of infrared analysis.

Regarding claim 23, *Dadachanji* discloses that the generator is an infrared generator. Those skilled in the art appreciate that quartz halogen lamps are well known for use as infrared generators and, absent some degree of criticality, would have been an obvious design choice within the skill of a person of ordinary skill in the art depending on the needs of the particular application.

Regarding claim 25, although *Dadachanji* does not specifically identify the means for supporting the infrared source, it is well known to use support structures such as photographic stands for supporting electromagnetic radiation sources. Those skilled in the art appreciate that

supports such as photographic stands are simple to operate, easily adjusted, and readily available. Therefore it would have been an obvious design choice within the skill of a person of ordinary skill in the art to use a photographic stand for supporting the source so as to allow for use of a support that is simple to operate, easily adjusted, and readily available.

Regarding claims 27 and 28, although *Dadachanji* does not specifically identify the type infrared sensing unit as a spectrometer or spectroradiometer, such sensing units are well known and considered as functionally equivalent devices for use as infrared sensing units and, absent some degree of criticality, would have been an obvious design choice within the skill of a person of ordinary skill in the art.

Regarding claims 30 and 31 *Dadachanji* discloses that the exposure and reference wavelengths are in the infrared range and that the exposure wavelength should be one that is significantly absorbed by water and the reference wavelength should include one that is not significantly absorbed by water (page 3, par. 2). The identification of particular wavelengths meeting the indicated criteria would have been an obvious design choice within the skill of a person of ordinary skill in the art.

Regarding claim 32, performing further testing to confirm the presence of water would have been an obvious design choice within the skill of a person of ordinary skill in the art (see explanation regarding claim 10 above).

Regarding claims 34-36 and *Dadachanji* suggest (see explanation regarding claim 10 above), that the testing be performed with a moisture meter such as a capacitance meter or a resistivity meter.

Regarding claim 37, although not specifically disclosed by *Dadachanji*, those skilled in the art appreciate that one of the more obvious means of confirming the presence of moisture is by use of visual inspection. The use of endoscopic probes is well known for use in visual inspection and, absent some degree of criticality, would have been an obvious design choice within the skill of a person of ordinary skill in the art depending on the needs of the particular application.

Regarding claims 39-41, the steps of using instruments such as capacitance meters, resistivity meters, and endoscopic probes are well known and would have been obvious design choices within the skill of a person of ordinary skill in the art.

Regarding claim 42, determining the source of the water would have been an obvious design choice within the skill of a person of ordinary skill in the art (see explanation regarding claim 11 above).

Regarding claims 43-44 and 49 those skilled in the art appreciate that many sources of water and/or moisture in buildings (i.e., ground water, rain water, leaks from plumbing and heating/cooling systems, condensation/steam from heating cooling systems, etc.) are generally determinable by analysis of a variety of well known physical and chemical properties of the water (i.e., salinity, pH, color, odor, the presence/non-presence of contaminants such as water soluble substances, the presence/non-presence of additives such as chlorine, chloramine, and antifreeze, etc.). Absent some degree of criticality, it would have been an obvious design choice within the skill of a person of ordinary skill in the art to modify the method as suggested by *Dadachanji* to perform further analysis on the water utilizing any of the variety of well known analytical techniques including testing the salinity, pH, and/or testing for the presence/non-

presence (purity) of contaminants and/or additives so as to determine the source of water so that moisture can be eliminated.

Regarding claim 50, *Dadachanji* discloses that the exposure wavelength and the reference wavelength are in the range of 10^{-2} and 10^{8} micrometers (i.e. a range including infrared).

7. Claims 8, 17, 24, 29, and 51-53 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dadachanji (GB 2 303 444) in view of Hellmuth *et al.* (DE 195 20 035).

Regarding claim 8, as best understood, *Dadachanji* suggests a method comprising the steps of: exposing with a generator a predetermined area of a structure with first electromagnetic radiation including at least one predetermined wavelength that is significantly absorbed by water (page 3, par. 2); sensing with a sensor unit second electromagnetic radiation from the structure, the second electromagnetic radiation reflected by a predetermined area of a structure and based on the first electromagnetic radiation (page 3, par. 2); and determining whether water exists in the structure based on the sensed second radiation (page 3, par. 2).

Although *Dadachanji* does not specifically identify the size of the area exposed to radiation as being at least one square meter, those skilled in the art appreciate that when examining large objects such as buildings, it is known in the art and considered an obvious design choice to expose large areas (i.e., areas of greater than one square meter) of the structure to radiation in order to allow for the structure to be scanned in a reasonable amount of time. *Hellmuth*, for example, discloses a system for measuring moisture in large objects comprising an infrared camera with an optical system that may be adapted for long-range and wide-angle observation and a source of radiation with a wattage of 250 W or 500 W (see English language abstract). Those skilled in the art would appreciate that such a system suggests exposing a

predetermined area of an object that is at least one square meter. Therefore, if not an inherent aspect of the method suggested by *Dadachanji*, it would have been obvious to modify the method so as to expose an area of at least one square meter, as suggested by *Hellmuth*, so as to allow the method to be efficiently utilized on large objects such as structures. Additionally the examiner notes that it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art (*See In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980). Since the actual area exposed to radiation is a well known result effective variable that determines the area that can be analyzed without retargeting the radiation source(s), the recitation of a particular area of at least one square meter would have been an obvious design choice within the skill of a person of ordinary skill in the art depending on the needs of the particular application so as to allow for optimization of the system.

Regarding claim 17, *Dadachanji* as modified in view of *Hellmuth* (see explanation regarding claim 8 above) suggest exposing an area of at least one square meter.

Regarding claim 24, *Dadachanji* as modified in view of *Hellmuth* (see explanation regarding claim 8 above) suggests the use of a radiation generator with a power between 10 and 1,000 watts.

Regarding claim 29, in the method suggested by *Dadachanji* as modified in view of *Hellmuth* (see explanation regarding claim 8 above), *Hellmuth* discloses that moisture detection of large objects can be performed with a sensing unit such as an infrared imaging camera (see English language abstract). Hyperspectral imaging systems are well known for use in infrared imaging. Those skilled in the art appreciate that imaging systems generally allow for larger areas to be analyzed in a shorter time. Therefore, absent some degree of criticality, it would have been an obvious design choice within the skill of a person of ordinary skill in the art to modify the

method disclosed by *Dadachanji* to utilize a hyperspectral imaging system so as to allow for a larger area to be tested in a short period of time.

Regarding claim 51, *Dadachanji* as modified in view of *Hellmuth* (see explanation regarding claim 8 above) suggest exposing an area of at least one square meter.

Regarding claims 52-53, *Dadachanji* discloses that the structure is a building (page 1, par. 1). Identification of the building as a house is considered an obvious design choice.

Allowable Subject Matter

8. Claims 45-48 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

9. The following is a statement of reasons for the indication of allowable subject matter:

Regarding claim 45, the prior art (*Dadachanji*, for example,) does not disclose or fairly suggest a method of determining the presence of moisture in structures utilizing electromagnetic radiation and further including steps of determining the source of the water to be ground water by using electromagnetic radiation including exposure and reference wavelengths relating to at least one water soluble substance.

Claims 46-48 are allowable on the basis of their dependency.

Response to Arguments

10. Applicant's arguments filed 20 March 2003 have been fully considered but they are not persuasive.

11. Regarding applicant's argument (claims 10 and 11) that *Dadachanji* fails to teach additional steps of testing and determining, the examiner notes that *Dadachanji* was not relied on

for the suggestion to perform additional testing. Regarding applicant's argument that *Dadachanji* teaches away from contactingly testing the water suspect area, the examiner disagrees. The examiner notes that since *Dadachanji* is silent on the steps of additional testing, *Dadachanji* is actually neutral (neither teaching toward or away) regarding the type of additional testing to be performed.

12. Regarding applicant's argument (claims 12 and 13) that *Dadachanji* does not teach additional non-contact testing, it is noted that *Dadachanji* was not relied on for the suggestion to perform additional testing but that once modified in view of well known practices, *Dadachanji* does suggest that such additional testing may include non-contact capacitance testing.

Regarding determining the source of the water, as evidence that it is well known and considered obvious to determine the examiner refers to Cassella *et al.* (US 3,791,097) citing the importance of determining the source of water so as to forestall additional damage caused by unwanted moisture (col. 2, lines 40-50). The examiner further notes that applicant's argument that it is not known to utilize such means as litmus paper, a pH meter or salinity is not supported by applicant's own admissions that such means for determining the source of the water are known in the prior art (Response to Requirement for Information at page 4, submitted 19 August 2002.

Regarding the motivation for additional testing, the examiner reiterates that such additional testing would have been obvious on the basis of good engineering practice (i.e., the typical measure twice, cut once scenario) as well as common practice in the art. As evidence that it is well known and common in the art to perform additional testing in combination with

testing using electromagnetic radiation, see for example Cassella *et al.* (US 3,791,097) abstract; col. 2, lines 53-68; col. 3, lines 58-66; and col. 6, lines 1-17.

13. Regarding applicants argument (claims 18-21, etc.) that it is not inherent, obvious, or well known to utilize measuring and reference wavelengths that are not significantly absorbed by materials composing the structure, the examiner notes for example Wong (US 5,721,430) for the general teaching that it is well known or obvious to that the reference wavelength be chosen to be "neutral" (i.e., not significantly absorbed by any of the other materials within the analyzed environment) while the measuring wavelength is chosen to have an absorption band that coincides with an absorption band of the material to be measured (see generally col. 3, line 55 to col. 4, line 13).

Regarding applicant's argument that because *Dadachanji* only discloses determining "an indication of dampness" *Dadachanji* does not therefore provide an option of determining that water is not present, the examiner notes that an inherent aspect of the arrangement suggested by *Dadachanji* is that the indicated level of dampness could be zero, such level inherently indicating that no water is present.

14. Regarding applicant's argument (claim 8) that *Hellmuth* does not suggest that exposing an area of at least one square meter, the examiner notes that the while *Hellmuth* does not provide specific information so as to determine the exact size of the area exposed by the lamps, the use of the term "wide angle" as relating to an analyzed objects would suggest that the area represents a significant portion of the object being analyzed and objects such as walls of building are generally understood by those skilled in the art to encompass an area of much greater than one square meter. Additionally, the examiner notes that regardless of whether or not *Hellmuth* is

considered to suggest an area of greater than one square meter, the particular area exposed is considered as a non-critical optimal design choice depending on the needs of the particular application. The examiner additionally notes, that contrary to applicant's assertion, those skilled in the art appreciate that 250 watt and 500 watt broadband sources (which according to the figure in *Hellmuth* are shown as an incandescent source with no focusing or collimating elements) are quite capable of exposing an area of greater than one square meter.

Regarding applicant's argument that neither *Dadachanji* or *Hellmuth* suggest radiation "emitted by", the examiner notes that the sensed reflected measuring and reference radiation disclosed by *Dadachanji* constitutes second emitted radiation.

15. Regarding applicant's argument (claim 17) the argument is addressed by the response (claims 12 and 13) as applied above.

16. Regarding applicant's argument (claims 24, 29 and 51-52), the argument is addressed by the response regarding claims 18-21, etc. above.

Conclusion

17. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37

CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

18. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

19. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Albert J. Gagliardi whose telephone number is (703) 305-0417. The examiner can normally be reached on Monday thru Friday from 9 AM to 5 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David P. Porta can be reached on (703) 308-4852. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9318 for regular communications and (703) 872-9319 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

Albert J. Gagliardi
Examiner
Art Unit 2878

AJG
June 15, 2003